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Jerry W. Herndon
IBM Corporation T81/503
PO Box 12195
Research Triangle Park, NC 27709

EXAMINER	
CHEN, CHONGSHAN	
ART UNIT	**PAPER NUMBER**
2172	10

DATE MAILED: 10/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/753,992	KHANNA ET AL.	
	Examiner	Art Unit	
	Chongshan Chen	2172	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 September 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *25-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *25-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. This action is responsive to communications: RCE, filed on 5 September 2003. This action is non-final. Claims 1-24 are cancelled; claims 25-40 are pending.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 25-28 recite the limitation "the updated database", "the non-updated database", "the time" and "the prior update" in line 5, 6, 7 and 10-11 of the claim. There is insufficient antecedent basis for this limitation in the claim.

4. The "database1" and "database2" in claims 25-28 are used as a name, but they are not referenced in the specification. The claims need to conform to the specification.

Response to Arguments

5. Applicant's arguments filed on 5 September 2003 regarding claims 25-40 have been fully considered but they are not persuasive.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "Gorelik is not for use in a multi-processing system") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Furthermore, Gorelik teaches a multi-processing system. Gorelik teaches DB A is the live

database and fields queries from *applications*, while DB B is the load database and receives updates form data sources or other update *processes* (Gorelik, page 2, [0023], notice the applications and processes are plural, which means the Gorelik's system has plurality of processors), and to read and write/load data at the same time (Gorelik, page 2, [0021]). It is obvious the Gorelik's system has plurality of processors access the databases at the same time. Therefore, Gorelik's system is a multi-processing device.

As per applicant's arguments regarding "Gorelik does not teach new searches are initiated against the new search database, and the new update database is updated when all pre-existing searches are completed in the update database" have been considered but are not persuasive. Gorelik teaches once a database is loaded successfully, a switch can take place such that the loaded database becomes the search database, and the searches are redirected to the newly search database (Gorelik, Fig. 4A –4C, page 3, [0040]). Also, Gorelik teaches updating the new update database after all the searches are completed (Gorelik, page 3, [0043], "A reconciliation utility may move the update data to the live database ... A Reconcile Pending timeout might be used to allow a query to finish before reconciliation starts"). Therefore, Gorelik teaches new searches are initiated against the new search database, and the new update database is updated when all pre-existing searches are completed in the update database.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 25-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Gorelik et al. ("Gorelik", Pub. No.: US 2002/0004799).

As per claim 1, Gorelik teaches a method of searching and updating a database in a mufti-processing environment, comprising the steps of:

maintaining two databases, database1 for searching and a database2 for updating (Gorelik, Fig. 1, Fig. 4A-4E, page 1, [0008]-[0009], "a system maintaining two copies of a database to be accessed by the system's application ... processing the request by a first database, when the request is for a read operation, and processing the request by a second database, when said request is for write/load operation"),

after updating database2, switching the databases so that the updated database becomes database1 and the non-updated database becomes database2 (Gorelik, Fig. 1, Fig. 4A-4E, page 2, [0023], "DB A is the live database and fields queries from applications, while DB B is the load database and receives update ... in due course, control manager 18 switches the designations ... then DB A would be the load database and DB B would be the live database"),

allowing searches in progress at the time of switching of the database to continue in now database2 (Gorelik, page 3, [0043], "A Reconcile Pending timeout might be used to allow a query to finish before reconciliation starts"),

allowing new searches to initiate in now database1 (Gorelik, Fig. 4A-4E, page 3, [0040], "Once a database is loaded successfully, a switch can take place such that the user applications are redirected to the newly loaded database and that database becomes the new live database"),

when all searches in database2 have completed, updating database2 with the prior update that caused to the last database switch (Gorelik, page 3, [0043], "A reconciliation utility may move the update data to the live database ... A Reconcile Pending timeout might be used to allow a query to finish before reconciliation starts"),

preventing another database switch until after the last step has completed (Gorelik, Fig. 4A-4E, page 3, [0040], "Once a database is loaded successfully, a switch can take place").

Claims 26-28 are rejected on grounds corresponding to the reasons given above for claim 25.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 29-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gorelik et al. ("Gorelik", Pub. No.: US 2002/0004799) in view of "Serialization of AVL-Binary Tree Element Retrieval via Duplexed Pointers" (March 1992, IBM technical disclosure bulletin, page 138-139).

As per claim 29, Gorelik teaches a computer program product for serializing data structure retrievals and updates in a multi-processing computer system, the computer program product embodied on one or more computer-readable media and comprising:

computer-readable program code means for creating two identical database structures, each representing an initial state for accessing stored data (Gorelik, Fig. 1, page 1, [0008]-[0010]);

computer-readable program code means for performing searches against a first of the two databases (Gorelik, Fig. 1, Fig. 4A-4E, page 2, [0023]);

computer-readable program code means for performing a first update against a second of the two databases, yielding a revised database (Gorelik, Fig. 1, Fig. 4A-4E, page 2, [0023]);

computer-readable program code means for switching the first database and the revised database, such that the first database becomes the second database and the revised database becomes the first database, said means for switching the databases further comprising a third instruction for re-ordering database pointers atomically to prevent interference from other processes (Gorelik, Fig. 4A-4E, page 2, [0023]);

computer-readable program code means for performing, after operation of the computer-readable program code means for switching, a second update against the second database, yielding a synchronized database that is structurally identical to the first database (Gorelik, Fig. 4A-4E, page 3, [0040]);

Gorelik does not explicitly teach a first program instruction for incrementing a search use count and a second instruction for decrementing the use count atomically after performing the search; performing a second update against the second database when the search use count for the now second database is zero. However, Gorelik teaches update the second database after all the searches are finished (Gorelik, page 3, [0043]). "Serialization of AVL-Binary Tree Element Retrieval via Duplexed Pointers" teaches a synchronization count, and each time an update is

performed, the synchronization count is incremented (page 138, 2nd paragraph). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a use count in the system of Gorelik to track how many processors are accessing the database. Because the read and write operations cannot be applied to a database at the same time, the update operation can be applied to a database only when there are no read operation in the database. Therefore, the database management system would include the use count to track how many search operations are in the database, and update the database only when the use count is zero (no search in the database) in order to preserve the integrity of the database.

As per claim 30, Gorelik and "Serialization of AVL-Binary Tree ..." teach all the claimed subject matters as discussed in claim 29, and further teach computer-readable program code means for obtaining an exclusive lock prior to operation of the computer-readable program code means for performing the first update ("Serialization of AVL-Binary Tree ...", first page, last paragraph, lines 1-3); and computer-readable program code means for releasing the exclusive lock after operation of the computer-readable program code means for performing the second update and the computer-readable program code means for switching ("Serialization of AVL-Binary Tree ...", second page, first paragraph, lines 1-3).

As per claim 31, Gorelik and "Serialization of AVL-Binary Tree ..." teach all the claimed subject matters as discussed in claim 29, and further teach computer-readable program code means for queuing a transaction, and wherein the computer-readable program code means for performing the second update further comprises computer-readable program code means for applying the queued transaction against the second database that results from operation of the computer-readable program code means for switching (Gorelik, 4A-4E, page 3, [0040]).

As per claim 32, Gorelik and "Serialization of AVL-Binary Tree ..." teach all the claimed subject matters as discussed in claim 29, and further teach performing a subsequent update against the synchronized database that results from operation of the computer-readable program code means for performing the second update; and wherein operation of the computer-readable program code means for performing the subsequent update causes another operation of the computer-readable program code means for switching (Gorelik, Fig. 4A-4E).

Claims 33-36 are rejected on grounds corresponding to the reasons given above for claims 29-32.

Claims 37-40 are rejected on grounds corresponding to the reasons given above for claims 29-32.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chongshan Chen whose telephone number is (703) 305-8319. The examiner can normally be reached on Monday - Friday (8:00 am - 4:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Y Vu can be reached on (703)305-4393. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

September 30, 2003

KIM VU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100